| Subwatershed | Approx. No. of Septic Systems | Delivery Ratio | | Uncertainty Ratio(3) | Downstream Trading Ratio | | | | | Final trading credit ratio(6) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent reduction during delivery(1) | Delivery Ratio(2) | | Nitrogen concentration reaching surface water after delivery & uncertainty ratio applied (mg/L)(4) | Bilings wastewater nitrogen discharge concentration (mg/l) | | Nitrogen available for trading credit (mg/L)(5) | | | |
| | | | | | | 30-day | 7-day | 30-day | 7-day | 30-day | 7-day |
| *variable name* | | *A* | *B* | *C* | *D* | *E30* | *E7* | *F30* | *F7* | *G30* | *G7* |
| *formula* | | | *1 / (1-A)* | | *50 / (B + (C-1))* | | | *D - E30* | *D - E7* | *50 / F30* | *50 / F7* |
| Yellowstone River-Billings | 4 | 45.0% | 1.82 | 1 | 27.5 | 14.8 | n/a | 12.7 | n/a | 3.94 | n/a |
| Yellowstone River-Sevenmile Creek | 2368 | 61.5% | 2.60 | 1 | 19.3 | 14.8 | n/a | 4.5 | n/a | 11.24 | n/a |
| **WEIGHTED LOCKWOOED PLANNING AREA AVERAGE (7)** | **2372** | **61.5%** | **2.60** | **1** | **19.26** | **14.8** | **n/a** | **4.46** | **n/a** | **11.22** | **n/a** |

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NOTES:

(1) This value is calculated using the Method for Estimating Attenuation of Nutrients from Septic Systems (MEANSS).

(2) This is the ratio of amount of nitrogen discharged from septic system as compared to amount of nitrogen reaching surface water after estimated reduction by denitrification. This does not account for in-stream nitrogen transformations.

(3) This is an additional reduction of nitrogen to account for the uncertainty in the method used to estimate how much nitrogen is removed between the drainfield and the surface water (a ratio of "1" indicates no additional reduction is applied).

(4) This value is the delivery and uncertainty ratio applied and converted into nitrogen concentration in order to compare to the nitrogen concentration discharge by the Billings wastewater treatment plant. The concentration calculated here is based on the nitrogen concentration discharged from a conventional septic system/drainfield of 50 mg/L [NOTE: a level 2 wastewater system would be based on a discharge of 24 mg/L, the formula would change to: "24 / (B + (C-1))", and the resulting trading credit ratio would be higher].

(5) This is the difference between the estimated nitrogen that discharges to surface water from a septic system and the average discharge by the Billings wastewater treatment plant between 2006-2010 as listed in their August 23, 2013 permit application.

(6) This ratio is based on the nitrogen concentration available for credit divided by the nitrogen concentraton discharged by a conventional septic system/drainfield, 50 mg/L. For example, a value of 11.22 means that for every 11.22 pounds of nitrogen discharged from a drainfield one pound of credit is applied to the nitrogen concentration and/or load limit(s) in the permit.

(7) Planning Area Averages are weighted based on number of septic systems in each subwatershed.